IN THE CLAIMS:

Please amend claims 1, 3-21, cancel claim 2 and add new claims 22 and 23 as follows. The following listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims:

Claim 1 (Currently Amended). A magnetic resonance method for localizing an interventional instrument ~~(1)~~ on which at least one microcoil ~~(6)~~ is provided, ~~first~~ comprising the steps of:

generating a magnetic resonance signal ~~being generated~~ in an examination zone by means of ~~an~~ a single non-selective RF pulse ~~(7)~~,

detecting said magnetic resonance signal ~~subsequently being detected~~ via the microcoil and under the influence of magnetic field gradients, ~~characterized in that, said RF-pulse (7) is a non-selective RF-pulse and after application of the non-selective RF pulse (7),~~ said detecting step comprising the steps of generating two or more gradient pulses ~~(8, 10, 11)~~ having a respective linearly independent spatial direction ~~are generated~~ in temporal succession without intermediate application of further RF pulses between temporally adjacent gradient pulses, and

determining the position of the microcoil ~~(6)~~ in the relevant spatial direction ~~being determined~~ from the frequency of

the magnetic resonance signal during each gradient pulse.

Claim 2 (Canceled).

Claim 3 (Currently Amended). A method of imaging blood vessels, comprising the steps of: ~~(angiography) where~~

providing a catheter ~~(1) which is provided~~ with at least one microcoil,

inserting the catheter ~~(6) for the detection of magnetic resonance signals is inserted~~ into the blood vessel ~~(3)~~ of a patient to be examined, ~~characterized in that~~

detecting the position of the catheter ~~(1) is detected by means of the method claimed in claim 1~~ during movement of the catheter, each detection of the position of the catheter comprising generating a magnetic resonance signal in an examination zone by means of a non-selective RF pulse, detecting the magnetic resonance signal via the at least one microcoil and under the influence of magnetic field gradients by generating two or more gradient pulses having a respective linearly independent spatial direction in temporal succession, and determining the position of the at least one microcoil in each spatial direction from the frequency of the magnetic resonance signal during each gradient pulse, and

reproducing the intensity of the detected magnetic resonance

signal ~~is reproduced as a function of the catheter position~~ in association with the detected catheter position, said reproducing step comprising the step of variably displaying the intensity of the detected magnetic resonance signal to provide a detected magnetic resonance signal with a higher signal intensity differently than a detected magnetic resonance signal with a lower signal intensity so that the presence and position of a stenosis restricting the blood vessel is visualized since the volume of blood in the blood vessel is indicated by the intensity of the detected magnetic resonance signal.

Claim 4 (Currently Amended). A method as claimed in claim 3, ~~characterized in that~~ further comprising the step of utilizing a contrast medium to increase the spin lattice relaxation rate in the medium ~~(blood)~~ surrounding the microcoil ~~(6) is increased by utilizing a suitable contrast medium~~.

Claim 5 (Currently Amended). A method as claimed in claim 3, ~~characterized in that~~ further comprising the step of repeating the pulse sequence ~~is repeated~~ at ~~such~~ short time intervals such that the contributions by the tissue surrounding the blood vessel ~~(3)~~ to the magnetic resonance signal are negligibly small.

Claim 6 (Currently Amended). A method as claimed in claim

3, ~~characterized in that~~ further comprising the step of analyzing the magnetic resonance signal from the surroundings of the microcoil ~~(6) is~~ spectroscopically ~~analyzed~~.

Claim 7 (Currently Amended). A method as claimed in claim 3, ~~characterized in that~~ further comprising the step of determining the flow speed of the blood surrounding the microcoil ~~(6) is determined~~ on the basis of the magnetic resonance signal ~~(flow encoding)~~.

Claim 8 (Currently Amended). A method as claimed in claim 3, ~~characterized in that~~ wherein the intensity of the magnetic resonance signal is reproduced in an anatomical survey image of the examination zone as a function of the detected position of the catheter ~~(1)~~.

Claim 9 (Currently Amended). A diagnostic magnetic resonance imaging method for imaging ~~the~~ surroundings of an interventional instrument ~~(1)~~ on which a microcoil is provided for the detection of the magnetic resonance signals, ~~characterized in that a~~ comprising the steps of:

applying the localization method ~~, particularly as claimed~~ as set forth in claim 1 ~~, is applied~~ alternately with a sequence of RF pulses and gradient pulses ~~that is~~ intended for the

imaging, <u>and</u>

<u>determining</u> the parameters of the imaging sequence that determine the volume to be imaged (field of view or FOV) ~~being predetermined by~~ <u>based on</u> the position of the interventional instrument ~~(1)~~ determined by ~~means of~~ the localization method [[,]] so that an image is formed of the surroundings of the interventional instrument.

Claim 10 (Currently Amended). A method as claimed in claim 9, ~~characterized in that~~ <u>further comprising the step of selecting</u> the volume of the FOV ~~is chosen~~ to be ~~slightly~~ larger than the spatial sensitivity range of the microcoil.

Claim 11 (Currently Amended). A method as claimed in claim 9, ~~characterized in that~~ <u>further comprising the step of using</u> an EVI sequence (echo voluminar imaging) ~~is used~~ for the imaging.

Claim 12 (Currently Amended). A method as claimed in claim 9, ~~characterized in that~~ <u>further comprising the step of superposing</u> the image of the surroundings of the interventional instrument ~~is superposed~~ on an anatomical survey image of the examination zone.

Claim 13 (Currently Amended). A method as claimed in claim

9, ~~characterized in that~~ further comprising the step of combining magnetic resonance signals acquired in different positions ~~are combined so as~~ to form one image of the surroundings of the interventional instrument ~~(1)~~.

Claim 14 (Currently Amended). A method as claimed in claim 9, ~~characterized in that~~ further comprising the step of selecting the FOV of the imaging sequence ~~is chosen~~ to be smaller than the spatial sensitivity zone of the microcoil ~~(6),~~ so that image artefacts ~~that are~~ caused by aliasing effects are eliminated by ~~combination of the~~ combining magnetic resonance signals successively acquired in different positions while taking into account the spatial sensitivity profile of the microcoil ~~(6)~~.

Claim 15 (Currently Amended). A method as claimed in claim 9, ~~characterized in that~~ further comprising the step of extending the succession of the localization sequence and the imaging sequence ~~is extended~~ with a further imaging sequence whose FOV is also situated in the vicinity of the interventional instrument ~~(1)~~ and during which the magnetic resonance signals are detected by an external volume coil or surface coil, the spatial sensitivity profile of the microcoil ~~(6)~~ then being determined by comparison of the data acquired by the microcoil ~~(6)~~ and the data of the external coil.

Claim 16 (Currently Amended). A magnetic resonance system for carrying out the method claimed in claim 1, which system ~~includes~~ comprises:

at least one coil ~~(17)~~ for generating a uniform, steady magnetic field,

a number of gradient coils ~~(18, 19, 20)~~ for generating gradient pulses in different spatial directions,

an RF transmission coil ~~(21~~) for generating RF pulses,

at least one control unit ~~(24)~~ for controlling the temporal succession of RF pulses and gradient pulses,

a reconstruction unit, ~~(25) and~~

a visualization unit ~~(26)~~,

a receiving unit, and

an interventional instrument ~~(1)~~ with at least one microcoil ~~(6)~~ which is connected to [[a]] the receiving unit ~~(27)~~, ~~characterized in that~~ wherein:

the at least one control unit ~~(23) is used~~ being arranged to generate, via the RF transmission coil ~~(21)~~, non-selective RF pulses ~~(7)~~ and, via the gradient coils, the two or more gradient pulses ~~(8, 10, 11)~~ with respective linearly independent spatial directions, and

the magnetic resonance signals detected by the at least one microcoil ~~(6)~~ being received via the receiving unit ~~(27)~~, in

order to calculate therefrom, by means of the reconstruction unit ~~(25)~~, the position of the interventional instrument ~~(1) that can be~~ which is displayed ~~by means of~~ on the visualization unit ~~(26)~~.

Claim 17 (Currently Amended). A magnetic resonance system as claimed in claim 16, ~~characterized in that~~ wherein the at least one control unit ~~(23)~~ is also ~~capable of generating~~ arranged to generate an imaging sequence whose FOV can always be automatically adjusted to the area of the position of the interventional instrument ~~(1)~~.

Claim 18 (Currently Amended). A magnetic resonance system as claimed in claim 17, ~~characterized in that~~ wherein the reconstruction unit ~~(24)~~ is used during the imaging to combine the magnetic resonance signals sequentially acquired in different positions of the interventional instrument ~~(1)~~ while taking into account the spatial sensitivity profile of the microcoil ~~(6)~~ so as to form an image of the surroundings of the interventional instrument ~~(1) that can be~~ which is displayed by means of the visualization unit ~~(25)~~.

Claim 19 (Currently Amended). A magnetic resonance system as claimed in claim 16, ~~characterized in that it includes~~ further comprising at least one additional external volume coil or

surface coil which serves to receive magnetic resonance signals during the formation of anatomical survey images that are displayed, together with the position determined for the interventional instrument ~~(1)~~, by means of the visualization unit ~~(26)~~.

Claim 20 (Currently Amended). A computer program product contained on a computer-readable medium for a magnetic resonance system as claimed in claim 16, ~~characterized in that~~ wherein the computer program determines the spectrum of the magnetic resonance signals detected by the microcoil and calculates therefrom, and on the basis of the gradient pulses used, the position of the interventional instrument for display by means of the visualization unit.

Claim 21 (Currently Amended). A computer program product contained on a computer-readable medium as claimed in claim 20, ~~characterized in that~~ wherein the parameters of an imaging sequence that determine the FOV are calculated from the position data determined.

Claim 22 (New). A method as claimed in claim 3, further comprising the step of constructing the at least one microcoil with a spatial sensitivity range corresponding approximately to a

diameter of human blood vessel.

Claim 23 (New). A method as claimed in claim 3, wherein each time the position of the catheter is detected, the gradient pulses are generated in temporal succession without application of further RF pulses between temporally adjacent gradient pulses.